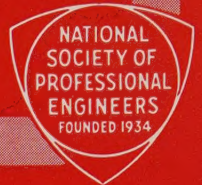




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the **ILLINOIS ENGINEER**



Read, "Some Present Day Trends in Engineering and Medicine"

by Floyd Boys, M.D.



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(See Page 3)

THE ILLINOIS ENGINEER, OCTOBER, 1950—VOLUME XXVI, NO. 10

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Affiliated with the National Society of Professional Engineers

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ILLINOIS ENGINEER: W. A. OLIVER, Editor-in-Chief; H. E. BABBITT, Associate Editor; MAX SUTER, Correspondent to American Engineer

Of Professional Interest

THE SOCIETY'S LEGISLATIVE ANALYST PROJECT

W. A. OLIVER, *Editor*

At the Annual Meeting last January the Illinois Society decided by vote to establish a Legislative Analyst in Springfield during the 1951 session of the state legislature. The money to finance the project was to be raised by contributions solicited among the society membership. Mr. H. A. Spafford who has been actively interested and engrossed with the project from the time of its conception was appointed chairman of the committee which was to carry on the campaign to raise the necessary amount of money, \$8,000.00 as decided at the May meeting of the Board of Direction. He has presented his program before a majority of the Chapters. Incidentally, if your Chapter hasn't heard him, invite him to your next meeting. You'll be convinced that his project is worth trying.

Mr. J. J. Woltman, Past President, I.S.P.E., and Consulting Engineer of Bloomington, has consented to act for the Society as Legislative Analyst. Mr. Woltman is known and respected throughout the State as a man of integrity who thinks and acts carefully. A better choice for an I. S. P. E. representative and a representative of the engineering profession in Springfield could not have been made.

Contributions have been coming in. If you have not already made yours, do so at once. Make your check payable to the Legislative Analyst Fund, I.S.P.E. and give it to your local chapter chairman or send it direct to I.S.P.E. Headquarters, 631 E. Green St., Champaign, Illinois. LET'S ALL ACT TOGETHER ON THIS IMPORTANT SOCIETY PROJECT AND PUSH IT TO A SUCCESSFUL COMPLETION.

MESSAGE FROM THE JUNIOR REPRESENTATIVE ON THE BOARD

We have approximately eighty E.I.T. members in I.S.P.E., whereas several thousand eligible E.I.T. members have taken positions in Illinois during the past four years. Are we concentrating enough on getting these young engineers into I.S.P.E.? If we could get 25% of these eligible members, the total I.S.P.E. membership would be increased by some five hundred members. Since I.S.P.E. needs many more members, it seems logical that our most fruitful source would be the E.I.T. Potential.

The Nazis and Communists have concentrated on indoctrinating the young people and have been quite successful, even though we don't agree with their basic principles. If we were to maintain a vigorous membership campaign to get the majority of the young engineers into I.S.P.E. within a few months after they graduate, we would soon find I.S.P.E. performing functions which are now impossible.

LEE E. STICKLER.

THE PRESIDENT'S MESSAGE

Like advice to motorists, now is the time to check your chapter to see if it is in order for effective winter operation. How about the starter? Is the battery fully charged, and are its terminals clear of thieving waste? Are the sparkplugs and timer-points clean and set correctly? Are the timing and the carburetor properly adjusted? Is the generator fully charging? Is there sufficient anti-freeze to prevent a freeze-up of the chapter if and when a cold snap occurs? Are the brakes operating properly, and are the tires kept properly inflated? How about getting some fuel with a little extra zip?

Check also body-parts as follows:

1. Advertising Committee—Each chapter should obtain one good advertisement for ILLINOIS ENGINEER before December 31.
2. Legislative Analyst—Canvass of chapter membership should be completed by December 1.
3. Legislative Analyzing—*Personal* acquaintance with all legislators and congressmen within each chapter area should be effected by December 31.
4. Membership—Not less than ten new members should be obtained by each chapter for election before December 31.
5. Civil Defense—Every chapter member should take his proper niche in the community plan.
6. Public Interests—Every chapter should display its interest in every community project affecting engineering within its chapter area.

* * *

The cordial hospitality of Capital, Central Illinois, Chicago, Kewanee, and Rock River Chapters was enjoyed in September. GEORGE E. EKBLAW, *President*.

VOX SECRETARII

P. E. ROBERTS, *Assistant Secretary*

Civil Defense Committee

The Civil Defense Committee is the new name of the former Military Affairs Committee. Not only has the name been changed but also the duties of the committee have been expanded to more adequately take care of the engineers' interest in defense problems. Members of

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READ THE ADVERTISEMENTS

SUBSCRIPTION RATES

\$2.00 per year in advance to members of the Illinois Society of Professional Engineers. \$4.00 per year in advance to non-members in U.S.A. and its possessions, Canada, and Mexico. Foreign \$6.00. Single copies 40c. Published by the Illinois Society of Professional Engineers, Inc., at 631 East Green Street, Champaign, Illinois.
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both the Chicago Chapter and the Capital Chapter are engaged in advance planning in coordination with committees set up by Governor Stevenson and Mayor Kennelly.

Chairman Klassen has been active in the organization of the State Committee and has sent a letter to his committee members telling them to "stand by."

Membership

With one or two exceptions, membership committees have been "dragging their feet." The goal of 2,000 members by January 1st can still be accomplished but not unless each Chapter Membership Chairman has the support and a little work from each member of his Chapter. Every member of the Society is an ex-officio member of the membership committee. With a little work from each "salesman," it can and will be done—"GET TWO."

Dues Payment

The collection of dues department reports that the situation is no better than at the same time last year. Most Chapters will have two meetings before the end of the year—two chances for Chapter Secretaries to bring this detail to the attention of the Chapter.

Examinations

A Structural Engineer's examination was given by the Department of Registration and Education on September 28th and 29th. The next professional engineering examination will be given by the Department on November 16th and 17th. Refresher courses are in progress in Waukegan, Rockford, Chicago, Decatur and Urbana in preparation for the professional examination.

Miscellany

Professor Babbitt and Mrs. Babbitt are in the vicinity of Atlanta, Ga. Between high water, head colds and tortuous roads, the Professor must have added a few more gray hairs. . . .

OFFICIAL I.S.P.E. NOMINEES FOR 1951

Mr. Virgil E. Gunlock of Chicago has been nominated President and Mr. A. D. Spicer of Kewanee has been nominated Vice President for the year of 1951 by the Society's Nominating Committee.

The Nominating Committee consists of James Whelan, Joliet, Chairman; E. E. Cooper, Decatur; and D. M. Campbell, Chicago. In accordance with the constitution of the Society, the committee is composed of the three latest available past presidents.

This announcement appears in this issue of the ILLINOIS ENGINEER in accordance with the requirements of the constitution. A biographical sketch of the candidates will be published in a later issue of the magazine.

COST OF LIVING INDEX

The correction factor to be applied to the I. S. P. E. Schedule of Minimum Fees and Salaries was 173.0 for August, 1950. The factor is based upon the U. S. Department of Labor's most recent Consumer Price Index.

ITEMS OF PERSONAL INTEREST

This column is read and enjoyed. Send in items (any item of a personal nature is good copy) concerning yourself or your friends. Give us the facts. We'll write them up for you.

C. M. Hathaway, N.S.P.E. Capital Chapter, is recovering from a second broken leg. The Society hopes that his recovery will be quick and as painless as possible.

* * *

Robert H. (Bob) Harmeson who has been engineering with the Department of Public Health in the Champaign office has resigned to accept a position with the Government at Los Alamos, New Mexico. Bob sold his house and moved West the last week of September. Illinois' loss is New Mexico's gain.

* * *

Miles Lamb's (Representative Chicago Chapter) mother was fatally injured and his father was critically injured in an automobile accident near Chicago on July 3rd.

* * *

September was a busy month for President George E. Ekblaw. He addressed the Chicago Chapter on September 5th, the Rock River Chapter at Dixon on September 8th, was the luncheon speaker at the summer conference of the Wisconsin Society of Professional Engineers at Wisconsin Rapids on Saturday, September 9th, addressed the Kewanee Chapter on the 19th, the Capital Chapter on the 26th, and the Central Illinois Chapter on the 28th. "Uncle" George is certainly getting around these days.

* * *

Two members of the Illinois Society are back in uniform. Lt. Commander Milton T. Holloway, former Field Secretary, has checked in with the Navy at Bremerton, Washington. Captain Robert R. French, Capital Chapter, has reported to service with the I.N.G. While we are on the subject of those members going back into service, this column is desirous of having such information from Chapters. Please give name, rank, and place of service if possible.

* * *

Professor J. C. Dietz, Vice President of Champaign County Chapter spent the summer observing "how the other half" lives and works. Jess worked with Pacific Flush Tank in Chicago.

* * *

H. E. Romine, who has been with the Army Engineers on Guam has just returned from a trip around the world.

Blessed is the man who having nothing to say, abstains from giving us wordy evidence of the fact.

COVER PICTURE

Library, Bradley University, Peoria

This is one of a series of pictures from educational institutions in Illinois of interest to engineers which have been presented on the covers of the ILLINOIS ENGINEER.

Bradley University was established half a century ago as a result of the generosity of Mrs. Lydia Moss Bradley, a woman of wealth and vision, who had as her advisers several of the most distinguished American educators of their time. The original Bradley gift is said to be one of the largest single gifts that any educational institution had received at that time. Bradley was founded in 1897 "in affiliation with the University of Chicago," and the principal campus buildings are modeled after those on the Midway. Classes at Bradley began October 4, 1897, and formal dedication took place at the first Founder's Day exercises on October 8, with Lyman J. Gage, United States Secretary of the Treasury, as guest orator, and with Dr. William Rainey Harper explaining the philosophy of the new school.

Since World War II, the university has been reorganized to include seven colleges, the College of Liberal Arts and Sciences, the College of Fine Arts, Bennett College, the College of Commerce, the College of Engineering, the College of Education, Peoria Junior college (for preprofessional and two-year terminal students), and the Graduate School. There are also several special divisions.

Bradley's new \$800,000 library (see Cover Picture) is regarded as one of the finest in the country for an institution of Bradley's size. Built along modern lines, it provides a maximum of space and has fluorescent lighting and air-conditioning throughout. There are a number of memorial rooms for special collections and seminars, in addition to the general and reference reading rooms and stacks.

66th ANNUAL MEETING

Plans are under way, committees have been appointed and are functioning and meeting rooms have been confirmed for the Sixty-sixth Annual Meeting which will be held in Champaign-Urbana on February 1, 2, and 3, 1951.

Herbert E. Hudson, Jr., Chairman of the Committee in charge of arrangements, has enlisted the aid of three men and one woman to head the various committees. Ben F. Muirhead, Housing and Host Committee; Edward Healy, Thursday Smoker Committee; Mrs. W. L. Everitt, Ladies Entertainment Committee; and J. H. Morgan, Banquet and Entertainment Committee.

Since Champaign-Urbana has so many places of interest to the ladies, particular stress is being laid on that program. The Annual Meeting at Decatur last year proved that the ladies want to attend with the engineer husbands. The ladies might not learn much by attending the meeting with hubby but they are assured a good time and a chance to meet their friends and make new ones. Mr. Member, plan to bring your wife with you this year.

The program is in a nebulous stage at the present but the Annual Meeting Committee can be depended upon to come through with a program packed with interest and information.

PRESTIGE

by P. E. ROBERTS

Prestige as defined by Webster is: "Weight, influence or force derived from past success or from character or from reputation." The weight, influence or force of the Illinois Society of Professional Engineers has been gathering momentum for the last two decades and the membership, individually and collectively, has built a solid bulwark of prestige. Few organizations or societies so fully fit all of the qualifications of the definition of prestige as does the Illinois Society, not

Sixty-sixth Annual Meeting

Illinois Society of Professional Engineers

Champaign-Urbana

February 1, 2 and 3, 1951

only from its past success, but also from its strong character and its established reputation.

Past Success

The cornerstone of past success was laid when the founding fathers stated the Society's objectives—"The objects of this Association shall be the encouragement of professional improvements and good fellowship among its members by meetings for the presentation and discussion of papers on scientific or other subjects and the discussion of such other subjects as may be of interest to its members." In the beginning, the interest of its members was diversified—from race tracks to railroad tracks and from water purification to garbage disposal.

Through the years, the interest of the Society's members has shifted from scientific to professional and economic plus the goodfellowship, which has been expanded.

With the advent of Chapter Organization, the Society's usefulness has rapidly accelerated. In cooperation with the Illinois Engineering Council, the first registration law was passed and when the law was found unconstitutional, the Society and the Council immediately began work on a new law. The Professional Engineering Act became the law by which engineering work in Illinois is regulated on July 20, 1945. Legislative activity in other laws dealing with both engineering and business has been of increasing interest to the members.

Character

The character of an organization is keynoted by its constitution. The Illinois Society of Professional Engineers Constitution, by its rigid requirements of admission and its carefully worded Articles of internal government, has pegged the character of the Society at a high level.

Character may also be measured by the quality of leadership. One of the outstanding features of the Illinois Society is the consistently good leadership it has enjoyed past and present. Not only its Officers and Board of Direction, but also its Chapter Officers is a select group and one which the entire membership of the Society is proud.

Another yardstick of character is the code of ethics by which an organization is guided. The Code of Ethics of the Illinois Society of Professional Engineers was thoughtfully worked out in committee before it was adopted by the membership. It is thorough and complete and one which could very well be used as a model by other societies.

Reputation

The reputation of the Illinois Society has been closely guarded through the years. The esteem extended to the Society through recognition by similar and other groups attests to the distinction it has won. In 1934, the Illinois Society was among the first to join with other State Societies to form the National Society of Professional

Engineers. The Illinois Society has long been a member of the Illinois Engineering Council. From time to time through the years, the Illinois Society has been associated with many groups for the purpose of furthering the engineering profession.

The Illinois Society and the University of Illinois have for many years studied and worked out mutual problems. The latest cooperative action has been the sponsoring and the conducting of refresher courses in preparation for the professional engineering examination. Two review courses in preparation for the structural examination have been conducted and several other like courses are contemplated. These refresher projects have been enthusiastically received and are among the most helpful undertakings which the Society has ever done.

The Illinois Society has enhanced its reputation through its sponsorship and recognition of junior engineers and engineers-in-training. Illinois Society was among the first to extend the helping hand to the younger men of the profession. Annually, the Society elects eight honorary juniors, two each from the graduating classes of the University of Illinois, Northwestern Technological Institute, Illinois Institute of Technology and Bradley University. The Illinois Award was conceived to honor the Illinois engineer who had done outstanding work toward the furtherance of the profession. Also, the Illinois Society pays homage to its illustrious members by electing them to honorary membership in the Society.

In Summation

The Illinois Society of Professional Engineers is well up the ladder of prestige. The fact that its members work hard individually and in committees to make real the Society's aims and objectives is proof that they are proud of their membership in the Society. You belong to a good hard working organization which is making substantial gains in the accomplishment of the extension of the economic and professional interest of its members and all engineers. Public acceptance of engineering as a profession is being earned by the members of the Illinois Society. Progress is being made toward the goal of full public recognition of professional engineering.

ON THE CHAPTER LEVEL

(An industrial engineer's view of the Society's part in caring for professional engineers. Extemporaneous comments made by "Gus" Rehm, chief engineer, Springfield Boiler Company, at a Capital Chapter ISPE-NSPE meeting on July 26, 1950—Ed.)

"It sounds difficult for a professional engineering group to tackle the question of getting better salaries for men, part of whom are in the employment class, but the majority of which are employed. I am privately employed and my men and I seek better compensation for our work—but, we seek it through the demonstration

of our professional value. It's tough—for each year at budget time we have to argue with our management that the precision of engineering “know how” is the key to the continued success of their product. Of course, one major mistake in design and performance and our sales take a tumble. Is it wrong then to seek additional assistance or recognition as a professional engineer by joining with others, well qualified, so that we can work together? Men in the American Bar Association and those in the American Medical Association have accomplished fine things, accompanied by good performance. Fine things, accompanied by good performance.

“Think of our younger engineers and their future. They start at \$200.00 per month or at perhaps a little more. In many factories the “floor sweep” makes considerably more than they. They can progress, if they are lucky, to perhaps \$500.00 per month in three to five years, but the overwhelming majority of all industrially employed engineers are now getting from \$400.00 to \$500.00 per month because this group is resisting the labor-worker union activity. These men believe in working in a different manner, in a professional way! A few who are fortunate eventually get from \$500.00 to \$700.00 per month when they reach departmental responsibilities, and they might move away from engineering into management at, say \$9000.00 to \$10,000.00 per year. It boils down to a matter of proper evaluation of engineering services on the part of management. If the older employer does not recognize this now, and unless he has a good staff of men that can command this respect, then we must forget the older men and get the younger ones into our Society so that 10 years from now we can see some changes.

A Fifteen-Year Change

“Fifteen years or so ago, ‘Stone and Webster’ men started a group of Massachusetts engineers thinking along these professional lines. Keep in mind now that it was not until the very recent years that our own State Society really started to tie into this professional end of the Society work. The idea, as you can clearly see, is penetrating, but it takes time. Most of us are happy that we may proceed along these lines for we have pride in the fact that we can do something others cannot do. Even if 10% of us were devoting our energies to this promotion and would start working on the younger engineers, we would see direct benefits, not now—but 10 years from now. If the older men are idealistic, they will help us.

“The idea of having our State organization represented at the legislative sessions with a full-time legislative analyst fits into this professional picture. It takes many men, however, working on these professional objectives to swing the majority of our members into this channel of thinking. To the older men who have not yet organized their thinking, let me say, ‘don’t obstruct’. Maybe some of these younger men will be our children.”

Reported by L. D. HUDSON

ENGINEERING NEWS-RECORD TAKES COGNIZANCE OF N.S.P.E.

W. A. OLIVER

In a recent issue of *Engineering News-Record* (August 17, 1950), that widely read civil engineering magazine discussed an action taken by the N.S.P.E. which is of interest to all engineers.

It has to do with the statement of principles adopted by the N.S.P.E. at the Boston meeting relative to collective bargaining and unions as they apply to engineers. Prior to the Annual Meeting in Boston, the statement of these principles was sent to all local chapters for their consideration so that they might instruct their National Director concerning his vote with regard to their acceptance or rejection. The principles were adopted as first presented with the exception of the deletion of one sentence. (See the “Report of the National Director,” published in the July 1950 issue of the ILLINOIS ENGINEER.)

The E.N-R. editorial deplores the adoption of these principles and suggests reconsideration because they will discourage collective bargaining by engineers. The writer disagrees with this. There is nothing mandatory in the principles as adopted. They consist only of a statement of the generally accepted idea that it should not be necessary for professional employees to bargain collectively and that it should be avoided wherever and as soon as possible. They do state that it is unprofessional for a professional engineer “voluntarily to join a heterogeneous labor union, dominated by, or obligated to, nonprofessional groups.” However, the principles do recognize and in effect state that there are times when it becomes necessary for the engineer, particularly the young man, to identify himself with a union or to bargain collectively.

The principles adopted in Boston are printed below.

STATEMENT OF PRINCIPLES BY THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS REGARDING COLLECTIVE BARGAINING BY PROFESSIONAL EMPLOYEES

1. It is definitely unprofessional for a professional engineer, professionally employed, VOLUNTARILY to join a heterogeneous labor union, dominated by, or obligated to nonprofessional groups. As stated by the Society, through its Board of Directors at Oklahoma City in September, 1948, “The individual responsibility and independent judgment required of a Professional Engineer are incompatible with the regimentation fundamentally inherent in unionization.”

Nothing in this statement of principle shall be construed as a criticism of engineers who may be forced to join a labor union, against their will, but engineers in this predicament should seek to extricate themselves by due process of law.

Nothing in this statement of principle shall be construed as a criticism of engineers-in-training, who voluntarily join a labor union when, as a step in their practical engineering training, they are temporarily employed in nonprofessional or subprofessional work, where their fellow workers are organized. When promoted to professional responsibilities, however, the engineer can not continue his labor union affiliations without sacrifice of professional status.

(Continued on page 18)

Some Present Day Trends In Engineering and Medicine

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Introduction

Anyone having even an ordinary acquaintance with newspapers and magazine articles of the day is well aware that the social organization and practice of the old professions (engineering, medicine, law) are receiving marked public scrutiny. This whole debate is actually a flare-up of the age-old controversy over individual liberty versus social security. Just as the 19th Century saw the flowering of individualism, so the 20th Century appears to be witnessing the resurgence of social values in the area of public welfare.

The current social reformers (witness the 1949 spring talk by British historian, Arnold Toynbee, before the Council of Foreign Relations in Chicago) call attention to the admittedly obvious fact that, for both the individual and the community, living has become more and more complex and expensive. The many requirements for decent living (adequate wage, unemployment insurance, sick benefits, retirement provisions, etc.) are increasingly harder for the individual alone to acquire. The would-be reformers state that the quality of professional services is satisfactory but that the cost is excessive. This they attribute to the carrying over of too much unbridled individualism on the part of business and professional leaders whom they accuse of placing personal advantage ahead of public welfare. The remedy offered by the reformers? More governmental supervision and control in the various economic and political compartments of our society.

In rebuttal, besides labeling the "unbridled individualism" charge of these socialists as greatly exaggerated, the professions have countered with the very honest and studied observation that history and experience have repeatedly demonstrated that ill-considered and unbridled socialization or nationalization of any business or profession promptly leads to evils of an even more serious sort than those accruing from rampant individualism. The professional men state, first of all, that unnecessary governmental control swiftly leads to deterioration in the quality of professional service. Secondly, they affirm that there results annoying and costly delay in professional services which stems from the ever-increasing red-tape and bureaucracy associated with over-centralization. Doctors and engineers allow these reformers credit for their good intentions, but do not forgive them for unsound and sentimental thinking on the subject. The remedy offered by professional leaders? De-centralization as much as is compatible

with social welfare; never allowing the government to do what individuals or groups can do themselves.

On two or three occasions during April and May of this year, a few faculty members on the Urbana Campus were discussing some of the present day trends in Engineering and Medicine, and whether or not socialization of these professions was either desirable or actually impending. A considerable amount of miscellaneous information was uncovered and friendly but lively discussion ensued. The Program Chairman² of the Champaign County Chapter of the National Society of Professional Engineers felt that his Society would enjoy hearing this material, and asked the author to present it. This was done, the outcome being an additional request that a written report of the talk be prepared for publication in the ILLINOIS ENGINEER.

The discussion aroused at the Urbana meeting referred to above revealed that many of the men present felt that there were definitely discernible social and organizational trends in both Engineering and Medicine, and that a few of them were probably objectionable from both the public and professional viewpoints. This paper attempts to summarize the discussions of that meeting for the sole purpose of stimulating debate among the members of both professions on some of the issues and possibly arousing action on one or two of them.

I. PRE-PROFESSIONAL TRAINING

STATISTICS	ENGINEERING ³ (University of Illinois at Urbana)	MEDICINE ⁴ (University of Illinois at Chicago)
a) Number of new, non-transfer students entering the 1948 fall class.....	347	166
b) Number of these students entering professional school directly from High School.....	335 (96.5%)	None
c) Number of these students entering professional school with one or more years of college training.....	12 (3.5%)	166 (100.0%)

Discussion

1) The place of pre-professional college training for the study of Engineering and Medicine.

² Mr. Louis McCreight, former Research Assistant in Ceramic Engineering, College of Engineering, University of Illinois, Urbana.

³ The statistics listed under ENGINEERING were kindly provided through the courtesy of Dean H. H. Jordan and Assistant Dean S. I. Pierce of the College of Engineering, University of Illinois, Urbana.

⁴ The figures given under MEDICINE were graciously furnished by Dean John Youmans of the College of Medicine, University of Illinois at Chicago.

¹ Summary of a talk given on June 2, 1949, before the Champaign County Chapter of the Illinois Society of Professional Engineers. This meeting was held at the University Club in Urbana.

Engineering: The above statistics indicate that few engineering students enter their professional school with much traditional college background.⁵ Do they mean that Engineering prefers to give basic science instruction in professional school when, were it handled in the college period, the student would have an opportunity to study additional professional subjects that otherwise curriculum time would not permit? Do the figures indicate that Engineering considers the study of the arts and humanities in college a waste of time? Personal discussions with several practicing and teaching engineers, it can be reported, revealed that these suppositions were incorrect. As pointed out to the author by a colleague, Mr. Paul K. Hudson,⁶ apparently the major reason why most students entering engineering school have little Liberal Arts and Science background is that the college course is considered too costly in time and money for what they can get out of it. The *average* Bachelor of Engineering (B.E.) cannot anticipate in later years sufficiently increased earning power to absorb the expense.

At this point a pertinent comment by the author's cousin, Mr. Richard Ford,⁷ might be mentioned. As he affirms, there have been medical schools in existence for 700 or 800 years while engineering schools are a sort of Johnny-come-lately. Over its generations of experience Medicine has seemingly concluded that college preparation for professional school is worthwhile for personal values let alone later professional and economic merit. It is possible that in a generation or two Engineering may change its mind and, like Medicine, decide that preliminary college preparation in the basic arts and sciences is highly desirable, the added expense notwithstanding.

Medicine: The present-day extensive college requirements demanded for the study of medicine are well known, and the above statistics merely confirm the recognized trend.

The apparent reasons why Medicine requires college preparation are: (a) It is convinced that basic science instruction is best provided the student in the college period, rather than in the first year or two of medical school. It can be done more leisurely and perhaps more thoroughly, and has the further advantage of allowing time in medical school for additional professional classes that otherwise curriculum time would not permit. (b) It firmly believes that the individual student derives many personal values from the study of the arts and humanities. These studies are considered invaluable for fine living, for fostering enjoyment and responsibility

in marriage, for more intelligent and effective citizenship, for better understanding of human nature, and improving ability to get along with people. (c) As has been brought out by Ford, all through the past the young doctor has been expected to become a member of the local intelligentsia in his community, and to join the teacher, the clergyman, and the lawyer, as the chief representatives of higher learning therein. To this end, the physician is definitely helped by the study of the arts and humanities which he finds generally is best secured in the college period.

As true as the above reasons may be for advocating and requiring college training prior to the study of medicine proper, they still are not the real explanation. Deeper analysis of the subject reveals that fundamentally the main reason even in Medicine, like in Engineering, is economic rather than academic. It has been learned from experience that the doctor delaying practice until he has completed a college education before medical school, and hospital training after it, can usually anticipate a sufficiently larger earning power in later years which will allow him to make up the added expense. 2) Any intelligent student graduating from High School at 18 years of age and immediately embarking on his four-year engineering or medical school training course, would be ready for professional work when around 22 years of age. Rightly or wrongly, however, the public seems to hesitate to engage such young engineers or doctors for much responsible professional work: the public seems to want these men to have the maturity of men around 26 or 27 years of age. What should the young engineer or doctor do to pass this so-called seasoning period? Is the ordinary college period of any help in this dilemma?

Engineering: For the economic reasons discussed above, Engineering believes it unfair and impractical to demand college preparation of its students who will aspire mostly to the B.E. degree. Therefore, this situation does not allow provision for any seasoning in a college period.

This explanation is accepted as quite valid by many engineers. But, as pointed out by a friend of the author, Mr. Fred E. Harrell,⁸ another reason for this viewpoint of Engineering can be cited. Since the practice of medicine is largely an individual effort, and since the practice of engineering has become mainly a group effort, any seasoning period must necessarily come, as it does in actual practice, during the first few years of professional work in the industrial world.

Medicine: The apparent public demand for a *seasoning period* for doctors before they are fitted by experience to assume the serious responsibilities of the profession is recognized and accepted by Medicine as a valid social requirement. To this end Medicine not only provides one such period, but actually arranges for two of them before the young doctor's training is considered

⁵ Since *in time* the college period immediately follows High School, Engineering nowadays still represents one type of college training. *In content*, however, there is a basic difference in the two curricula. The Liberal Arts and Science college course traditionally concerns itself only with non-specialized training in the fundamental arts and sciences. The engineering course, on the other hand, presumably deals only with specialized training in the *applied* arts and sciences specifically relating to the particular profession. In this paper the term "college" will refer only to the pre-professional period of study providing instruction in the fundamental arts and sciences.

⁶ Assistant Professor of Electrical Engineering, College of Engineering, University of Illinois, Urbana.

⁷ Attorney-at-Law, Detroit, Michigan.

⁸ Manufacturing Vice-President, Reliance Electric and Engineering Company, Cleveland, Ohio.

completed. This first one is the four-year college course, while the second is the period of hospital internship which at present usually occupies from two to five years' time.

Predictions

1) Primarily for the economic explanations discussed in this Section, it is *not* believed that Engineering will require much pre-professional college preparation of its students. However, this trend would probably change in the future if and whenever the potential earning power of the *average* B.E. engineer increases to a level allowing absorption of the involved expense.

II. PROFESSIONAL SCHOOL TRAINING

STATISTICS	ENGINEERING ^a (University of Illinois at Urbana)	MEDICINE ^a (University of Illinois at Chicago)
a) Number of years professional school study required.....	4 years	4 years
b) Is Aptitude Test required for admission?....	No (Approved by several schools but passing score not absolutely required for acceptance)	Yes
c) Percentage of new, non-transfer students entering the 1948 fall classes of these two schools with the scholastic grade "quartiles" from which they were drawn		
1) Percentage of students entering with grade averages falling in the 1st (highest) quartile....	47.6%	100.0%
2) Percentage of students entering with grade averages falling in the 2nd quartile.....	27.2%	None
3) Percentage of students entering with grade averages falling in the 3rd quartile.....	16.6%	None
4) Percentage of students entering with grade averages falling in the 4th (lowest) quartile.....	8.6%	None

2) As to the *seasoning period* problem, assuming that it does represent a true and valid public requirement, again no change in current engineering practice is contemplated for the reasons given above. Since Medicine has already accepted the requirement, and is meeting it

^a The statistics given here under ENGINEERING were kindly supplied by Mr. E. C. Seyler, Registrar of the University of Illinois, Urbana. They represent the scholastic averages of Freshmen engineering classes of the past few years. Dean H. H. Jordan states that these averages also hold for the 1948 fall class. As indicated in the table in Section I, these statistics are based largely on over-all High School grades.

by providing two seasoning periods, continuation of this practice without change is anticipated for Medicine.

Discussion

1) The proper length of the professional school training period.

Engineering: The traditional four years' period is still standard procedure in most all schools. Theoretical considerations would suggest that additional time would be desirable, but there must be a limit as the young engineer has to go to work sometime. The four-year period represents a compromise between theoretical and practical considerations.

Medicine: Same as Engineering.

2) The matter of including literary instruction in the professional schools proper.

Engineering: As explained to the author by several engineers, there is a discernible trend in some schools to include literary instruction in the engineering curriculum. Generally speaking, however, Engineering appears to disapprove of mixing professional and literary classes. The reasons are: (a) It tends to dilute the scientific training. (b) Occasionally it creates a certain amount of confusion in the students' minds as they find each type of instruction competing for their study time. (c) Some students under the combined regime lose interest in their professional school course and drop out of school. When this occurs there is undesirable loss of time and money to both the students involved and to the engineering school which otherwise could be educating another and interested embryo engineer.

Medicine: Since Medicine now uniformly requires all medical students to have preliminary college instruction in both the arts and sciences, no effort is made by American medical schools to include additional literary instruction in the professional course. In Canada, however, in those medical schools with the so-called six-year medical school, exceptions to this statement must be noted.

3) The use of aptitude testing in engineering and medical schools.

Engineering: A few American engineering schools are reported to require preliminary aptitude testing of their entering students, while others encourage the same but insist that the analysis be secured elsewhere on the student's initiative. Generally speaking, there does not seem to be any concerted effort by engineering schools at large to set up any uniform type of aptitude testing. In those schools encouraging or demanding aptitude analysis, we have not heard reports of any prospective engineering students being refused admission for failing to pass the test. Medical schools, on the other hand, usually reject applicants who have so failed.

By and large, the ability of a student to survive four years of engineering school training is considered sufficient evidence of aptitude for the profession. In this respect the practice of Engineering and Medicine are in accord.

Medicine: Medicine officially accepts aptitude analysis, and so tests its students in three ways. (a) The desire and ability of a student to complete three or four years of pre-professional college training, and still wish to study medicine, is considered one satisfactory aptitude test. (b) The experts in psychology and education have established, beyond reasonable doubt, a single aptitude test which has practical value in helping weed out those with a lack of temperament for Medicine. On this basis most medical schools now require all applicants to pass such an aptitude analysis before they are considered for admission. (c) Finally, as with Engineering, any student who can survive the four-year medical course certainly evidences aptitude for the study and practice of medicine.

A recent questionnaire survey reported in one of the popular medical economic journals¹⁰ revealed that over 91 per cent of graduate physicians and surgeons were definitely satisfied with their profession, and that these men would again choose Medicine as their life's work were they starting out anew. This information surely suggests that the methods of aptitude testing employed by Medicine are reliable and practical.

4) Scholastic grade requirements for professional school admission.

Engineering: The statistics given under Section II, Professional School Training, indicate the percentages of students accepted from the four quartiles of scholastic achievement by one of the large engineering schools. It is seen that roughly 48 per cent had grade averages falling in the 1st (highest) quartile, 27 per cent had grade averages falling in the 2nd quartile, 17 per cent had grade averages falling in the 3rd quartile, and 9 per cent had grade averages falling in the 4th (lowest) quartile. It should be remembered that these scholastic averages are based mostly on High School grades.

One very desirable result stems from this engineering practice, namely, that an opportunity is provided for many students of varied scholastic backgrounds to try the study of engineering. Although many of these men may be dropped later for poor grades, at least Engineering cannot be accused of not giving most of them a fair chance.

Medicine: The statistics given in Section II, Professional School Training (see above), also state the various percentages of medical students accepted from the four quartiles of scholastic achievement by one large school. Numerous doctors and educators consider objectionable this practice of medical schools in selecting only those students with the very highest grades. The author talked with a great many competent professional and businessmen about this topic and found that a surprising amount of careful thinking is being given to the problem. Most of the criticisms of the admissions practice under discussion can probably be grouped under three main headings.

First of all, some of these critics affirm that the policy may actually constitute one form of "restriction of trade." The author knows personally of two instances where fathers went with their sons to several medical schools for the purpose of discerning the possibility of their sons' admission when these students completed their college education. These people were given such a hodge-podge of good, bad and indifferent replies that they came away from the interviews discouraged and even disgusted, and holding the opinion that Medicine could be suspected of trying to "restrict (the) trade."

The second general criticism encountered, initially pointed out to the author by his colleague, Dr. Seward Staley,¹¹ is that this admission practice may result in loading the medical profession with men of the type unwilling to practice in the smaller cities and rural areas where an under-supply of doctors is thought to exist. There seems to be considerable evidence pointing to the fact that the highly educated doctor (four years of college, four years of medical school, and from one to five years of hospital training) is likely to become so accustomed to extensive clinical and laboratory hospital facilities that he will insist upon practicing only in a community providing the same—some large city. Further, this type of doctor generally will desire for his family the educational and cultural advantages to which they have become accustomed during his long period of preparation, and which he likely feels are to be found mostly in the big cities. Staley, by the way, has suggested that selection of medical students from the *upper two* quartiles might go a long way towards helping solve this dilemma.

The third general type of criticism of the medical school practice of accepting only students from the first quartile is that it tends to select men who may have abundant mental ability but who are lacking in the personality maturity so necessary for the practice of medicine. It is undoubtedly true that innumerable laymen (and many doctors, unfortunately) tend to forget that, since Medicine deals with sick people and not merely the isolated disease state, it necessarily is an art as well as a science. Mere technical knowledge is not enough. The good doctor must be able to understand the patient as well as the disease if the best possible therapeutic results are to be attained. For proper medical performance as brought out by Bliss,^{12a} the good doctor must possess personality maturity as well as technical knowledge. Neither one alone is as desirable as the combination.

Recently, in his newspaper column, Mr. Merryle S. Rukeyser,^{12b} wrote of the requirements for the successful businessman. If what he says is true for business, we can fairly assume that the same certainly holds for Medicine.

¹¹ Director, School of Physical Education, University of Illinois, Urbana.

^{12a} Guy L. Bliss, M.D., Claremont, California.

^{12b} This article appeared in the Chicago *Herald-Examiner* for Sunday, November 6, 1949.

¹⁰ *Medical Economics Magazine*, September issue, 1949.

“The St. Louis Junior Chamber of Commerce recently tapped a reservoir of perennial human interest when it undertook to formulate rules for succeeding in life. The crux of the findings was that achievement in the business world does not depend so much on super mental capacity (grades) as on a balanced personality capable of winning the loyalty of others.

“This checks with the experience among West Point graduates. Usually the top-flight commanders were not drawn from those who stood at the very top of the class, but frequently from those who were nearer the middle. General Douglas MacArthur was an exception to prove the rule. He was at the head of his class, and his academic record foreshadowed his accomplishments in actual soldiery.

“In business administration, in corporate hierarchies, is often not the men with I.Q.’s in the stratosphere of genius who win the blue ribbons, but men of leadership qualities who excel in attractive personality as well as in mental ability. Extreme geniuses are frequently too unstable and flexible in their desires and objectives to hew to the straight and narrow path up the highway to success. Sometimes the very qualities which make them geniuses bring accompanying personality traits which are not conducive to the grinding routine of (everyday) business.”

If success in Medicine does relate positively to possession of both personality maturity and respectable academic attainment, the question arises, “What type of college student generally presents these requirements?” Time and space do not permit any detailed discussion, but it is believed fair to say that many of most competent observers believe that the good “B” student fills the bill better than the student with the “A” record. There are exceptions, of course, but the general rule is believed true. The good “B” student is usually the young man who takes time during his college preparation for participation in the many curricular and extra-curricular activities available to him which broaden the personality and promote all-round maturity.

5) Scholastic mortality rate among students in engineering and medical schools.

Engineering: As expressed by Harrel⁸ and others, the mortality rate in engineering school varies somewhat with the type of school. Among students in the state supported engineering colleges, which generally have the largest classes, it is as high as 50 or 60 per cent. In the privately supported schools, however, the figure is reported as nearer 25 or 30 per cent. In both instances, most of the students expelled for poor grades are dropped during the first two years of engineering school.

This practice of flunking out a considerable number of undesirable engineering neophytes during their first two years of professional training may seem rather severe. Regardless of its academic merit, however, engineering students cannot complain that they were not given a fair chance.

Medicine: Years ago, medical schools followed the same custom now prevalent in engineering schools. They admitted large classes of students with average as well as top scholastic backgrounds, and then proceeded to weed out many of them during the first two years of medical school. But the situation has changed in the

past twenty years. Nowadays, although the admission to medical schools is an extremely difficult achievement because of the large number of applicants, once a student has been accepted he rarely is dismissed except for gross scholastic failure or character defect.

This current medical practice naturally is easier on the students of medicine than that of Engineering is on the embryo engineers. The medical student is unlikely to be dropped from school and suffer the attendant loss of time and money. Some qualified critics hold that the medical schools might well revive their older practice of admitting larger Freshman classes, and then cut them down to desirable size by judicious flunking of the poor students during the first two years of professional training. This suggestion at least has the merit of allowing more interested students the chance to start medical school and possibly to finish the course.

Predictions

- 1) Medicine and Engineering will no doubt continue current practices of *not* giving literary classes in professional school. The reasons advanced for not mixing pre-professional and professional studies seem sound.
- 2) It is believed that Engineering eventually will adopt aptitude testing as one requirement for admission to engineering school. It is contended that just as satisfactory aptitude tests can be found for Engineering as have been determined for Medicine.

STATISTICS	ENGINEERING ^{13 14}	MEDICINE ^{15 16}
a) Number of years supervised practical post-graduate training required <i>by law</i> for licensed and independent practice	4 years (industry)	1 year (hospital)
b) Number of years supervised practical post-graduate training required <i>by law</i> for specialist certification	None (other than above)	None (other than above)
c) Number of years supervised practical post-graduate training required <i>by edict of profession</i> for specialist certification	4 years (By American Soc. Prof. Engineers and other professional groups)	3-5 years (By American Boards and other certifying bodies)
d) Number of industries or hospitals properly equipped and staffed for post-graduate practical instruction	Only a few large industries now so set-up. But, their number is growing	Innumerable hospitals in U.S.A. are actively so organized

¹³ This information was kindly supplied by Mr. Paul H. Robbins, Executive Director, National Society of Professional Engineers, Washington, D. C.
¹⁴ Courtesy of Professor T. C. Shedd, College of Engineering, University of Illinois, Urbana.
¹⁵ From the "Medical Licensure Statistics Report for 1948" kindly furnished by Donald G. Anderson, M.D., Secretary of the Council on Medical Education and Hospitals, American Medical Association. Published in the May 21, 1949, issue of the *Journal of the American Medical Association*.
¹⁶ Thanks is expressed for this and other information to Mr. Joseph Palmer, Executive Secretary, Indianapolis Medical Society, Indianapolis, Indiana.

3) Grades of above-average caliber must remain a cardinal requirement for admission to medical school. But, as suggested by Staley, it can be argued that Medicine (like Engineering) should seriously consider selecting its students from the *upper two quartiles* of scholastic achievement rather than just the top one. This selective process should also include personality evaluation. The medical school Dean might well employ in these considerations some sensible personality inventory screening device. Industry has had an impressive amount of experience and success in this field and Medicine should not hesitate to draw upon it if necessary for assistance.

III. IMMEDIATE POST-GRADUATE TRAINING

Most professional men agree that no engineering or medical school graduate fresh out of school should be turned loose on the public without some period of supervised practical training and experience. They believe that such experience not only protects future clients or patients, but actually assists the young professional man in getting a faster and better start in his life's work.

Discussion

1) Professional differences in the post-graduate practical training programs.

Engineering: Engineering graduates are not obligated to engage in their profession, and many do not do so. Numerous men take the engineering course only for the background training it affords for business. These individuals have no desire or need for any post-professional school period of practical training.

There are, on the other hand, some graduated engineers who want to do work in one of their fields but who do not wish, or need, a license. It is permissible for such individuals to practice indefinitely without license but only under the supervision of a licensed engineer.

However, when a graduate engineer wishes the privilege of independent practice, whether as a private consultant or as a full-fledged engineer in some industry, he must become licensed in his field. Statistics indicate¹⁷ that about 50 per cent of the total engineering population in this country are so engaged.

* Specialist Certification in engineering, according to my understanding, is provided by the National Society of Professional Engineers. Requirements for such certification include graduation from an accredited engineering school, four years' practical experience in the field of practice, and passing oral and written examinations.

Medicine: It is quite possible for graduate doctors to work indefinitely without license in many non-clinical professional fields. The relatively few doing this are

generally found in teaching or research in such non-clinical fields as anatomy, physiology, pathology, et cetera. However, if their work involves diagnosing or treating people, they must either get their individual license or work only under the supervision of duly licensed physicians or surgeons. Only a very small number of graduate doctors (perhaps 1-2 per cent) work without license under the restrictions just noted. Most doctors electing to remain in the non-clinical fields prefer to get their license in case they should ever decide to go into clinical practice.

Any medical graduate desiring to engage in general independent practice, private or institutional, is legally required to serve satisfactorily a one-year internship in some accredited hospital and then pass written and oral State Board examinations. Once licensed he can legally practice as a physician or surgeon (or both) in any field of medicine. In actual practice, however, the ability to engage in any specialty field is limited by his conscience and by the size of the community in which he works. In the small town and rural areas, many doctors do both general medicine and surgery partly by choice and partly by necessity. Generally, they refuse to undertake major specialty procedures preferring to call in an established city specialist for the same.

Any doctor desiring specialist certification must take additional hospital training (3-5 years) under certified specialists in the field of their choice, and then pass the specialty examinations demanded by the American Boards or the Colleges of Physicians or Surgeons. Most big city hospitals deny specialists' privileges in surgery or medicine to general practitioners. The states do not legally require this limitation of practice, but silently condone it.

2) Availability of properly equipped and staffed industries and hospitals for giving engineering and medical internship training.

Engineering: There are apparently a few large industries adequately set up for this program but few or no smaller concerns interested or capable of providing the same. Numerous engineers consider this situation a major defect in engineering training. These men are eager for more industrial internships to be made available, and do not doubt the existence of a sufficient number of industries capable of doing the work if these concerns would accept reasonable direction by some selected overall engineering body.

Medicine: As most informed people know, there are innumerable hospitals throughout the country now set up to provide for the medical training of interns. In practice, hospital approval for internship is granted by a sub-body of the American Medical Association which does not grant such approval unless it has become properly staffed and equipped for the necessary instruction. The states license hospitals to care for sick people, but have not enacted actual legal requirements regarding the internship programs.

¹⁷ According to Mr. Paul H. Robbins, ¹⁸ there are estimated to be approximately 350,000 engineers in the U.S.A. eligible for licensure. Of these, 150,000 have been licensed, or approximately 50 per cent.

* This statement is incorrect. Perhaps Dr. Boys refers to the certification being done by the National Council of State Boards of Engineering examiners.—EDITOR.

Predictions

- 1) As in the past, many men will wish to secure engineering training primarily as a background for business. These engineering-businessmen will not want or need any scientific internship period, and few of them will be willing to spend the extra time and money required for it. Therefore, it is doubted if the states or the Engineering profession will legally require this sort of practical training of these men. After all, this group probably constitutes 57 per cent or more of all graduated engineers (see Section IV under statistics), and it is unlikely that this majority group will ever permit any such legal or professional legislation to be put across.
- 2) On the other hand, for the many men working strictly as engineers such internship is quite desirable. These engineers as a group constitute about 43 per cent of graduates and probably exercises a more important voice in the profession than the majority group mentioned. Quite possibly the minority group may eventually put across the requirement of an engineering internship for those individuals planning to actually work as engineers.
- 3) Assuming that the facts described above are correct, it is imagined that Engineering will eventually find or develop more industries with adequate facilities and teaching personnel for engineering internship training for those men desiring it. Eligibility of any industry for such instruction should be considered a mark of distinction.
- 4) Medicine has long accepted the value and necessity for the general doctor, as well as for the specialist, to secure adequate post-graduate hospital experience before going into practice. The present combination of legal and professional custom are considered adequate regulation regarding the problem.

IV. LICENSURE AND REGISTRATION REQUIREMENTS FOR PRACTICING ENGINEERS AND DOCTORS

STATISTICS:	ENGINEERING ¹³	MEDICINE ¹⁵
a) Number of states requiring formal <i>licensure</i>	48	48
b) Number of states having laws pertaining to <i>registration</i>	48	31
c) Approximate percentage of engineers and doctors who are licensed eligible to engage in practice.....	50% ¹⁷	98% ¹⁸

Discussion

- 1) The philosophical basis of professional licensure. As so aptly stated in a booklet on this subject distributed by the National Society of Professional Engi-

neers,¹³ modern civilization has found it necessary to regulate the practice of persons whose activities deal with the protection of life (Engineering), health (Medicine), and rights and property (Law). Elimination and exclusion of the dishonest and unqualified from the practice of these professions, as matters of public welfare, are undebatable tenets.

There is another argument for licensing professional men, namely, the protection of the good name of a profession in the public eye. Any profession is rightly judged by the qualifications of all who use its name, by the failure of the incompetents, and by the conduct of the unworthy unless a clear dividing line is established in the public mind between the lawful practitioner and those not worthy of the same privilege.

The early history of all three mentioned professions (Engineering, Medicine, and Law) saw many men voicing opposition to registration and licensing as a tax on practice in their field. Even today we still have sporadic political efforts by minorities composed of quack doctors, quack lawyers, and quack engineers (and their friends) to emasculate existing licensing laws. Actually, licensing is interference only with unlimited practice by those who wish to claim the right to engage in a field regardless of character and professional fitness. Those who are competent and truly interested in the standards of their profession raise no serious objections to having their competency certified.

- 2) The legal basis of professional licensure. Licensing of members of any profession is an exercise of the police powers inherent in any state for the protection of public safety, health, rights and property. It places the force and sanction of the law behind the desire of the genuine engineer to promote public safety and of the serious doctor to promote health, to the utmost degree possible.
- 3) Specific values to the professions stemming from licensure.

For the engineer or doctor planning to practice his profession (as a private consultant, or as a member of some institutional staff) such laws have decided merit. Without them there is no way (a) to keep out of the profession those who are unworthy or incompetent, (b) to preserve to the qualified engineer or physician his rights of practice against restriction, encroachment and unqualified competition, and (c) to stop the misappropriation and abuse of the designations *engineer* or *doctor*.

- 4) Present-day status of engineering and medical licensure.

Engineering: As verified by Robbins¹³ all 48 states have laws pertaining to licensure. He points out that in two of the states (Montana and Louisiana) licensure is required only for civil engineers. It is important to point out here that in the engineering profession no distinction is made between the terms "registration" and "licensing"; the two words are frequently used interchangeably. As mentioned earlier in this paper the

¹³ Exact figures have not been found on this topic. Very few men securing the medical degree neglect taking some state licensing examination. According to the report by Anderson¹⁷ there were in April 1949 approximately 202,516 physicians in the United States. We would estimate that about two per cent fail to secure licensure.

usual requirements for engineering licensure are graduation from an accredited engineering school and four years' supervised practical experience in the particular field of the applicant. There are modifications of these requirements in two states that need not be discussed.

Medicine: In all 48 states medical licensure is demanded of all regular practitioners. The usual requirements for obtaining a medical license are graduation from an accredited medical school, serving satisfactorily an internship period of at least one year, and passing comprehensive written and oral examinations. In recent years numerous states have also demanded registration of practitioners in addition to licensure. Contrary to the engineering custom, in Medicine licensure and registration are not synonymous. The purpose of the recent trend for separate registration of all practitioners of the healing arts (regular and the irregular practitioners) has been to thus ferret out the unorthodox or quack physicians many of whom have been found practicing without any kind of state registration, licensure or supervision.

Predictions

1) No changes are contemplated in Medicine regarding registration and licensure for practitioners of the healing arts, regular or irregular.

2) Present-day practices in Engineering regarding registration and licensure seem satisfactory, and no marked change is expected.

V. PROFESSIONAL SOCIETY MEMBERSHIP IN ENGINEERING AND MEDICINE

STATISTICS:	ENGINEERING ¹³	MEDICINE ¹⁶
1) Percentage of engineers or doctors belonging to their NATIONAL society.....	7.0%	75.0%
2) Percentage of Engineers or doctors belonging to their STATE and LOCAL societies.....	15.0%	89.0%

Discussion

Medicine: Review of the past history of medical societies reveals one trend which is probably the most important single explanation of their large membership. From the very beginning the primary and dominant organization has been the Local Medical Society which is usually county-wide in scope. Members have been accepted only as "doctors" and not as specialists thus fostering the general interests of the profession. The sociologists designate this organization as Horizontal in type.

Until around the turn of the last century (1900) most doctors practiced as physicians *and* surgeons; there were few strictly limited specialists. These men banded together in the general or all-inclusive Local Medical Societies which were just as numerous in the small city and rural areas as in the large metropolitan centers.

There have been Local Medical Societies, city or county, for many generations and as far back as 1600, or earlier. With the industrial revolution, and the increasing migration of people from the rural to city areas, certain political and economic problems arose relating to the medical profession that needed wider cooperation of these local societies throughout the land. Out of this fundamental need there arose the existence of the State Medical Societies which continued to maintain the same over-all, general Horizontal structure and organization. Most of the state societies were born between the years 1850 and 1915. Political and economic problems still pressed the medical profession which they realized could only be met and handled on a national basis. In 1905 there was formed the national body, the American Medical Association, which has since then become the dominant medical organization dealing with political and economic issues relating to Medicine. The Local Medical Societies, the State Medical Societies, and the American Medical Association are all inter-related, and membership is interdependent. The point to be remembered here is that, although numerous specialty groups have formed in the interim, the characteristic Horizontal organizations have remained dominant in the promotion of the welfare of the medical profession at large.

The strength of the Horizontal organizations has been that, being all-inclusive, they alone could speak authoritatively for all physicians and surgeons. Because of this type of organization, Medicine speaks with increasing authority and power in all phases of public life in which it has an interest.

Engineering: Reviewing the past history of engineering societies reveals, with an initial exception which will be discussed momentarily, that most of them have been specialty groups. For instance, a member could not be just an "engineer," but he had to be an electrical engineer, a mechanical engineer, a sanitary engineer, et cetera. The sociologists designate this type of organization as Vertical in type.

Until about 1850 it seems that most engineers, like their medical contemporaries, were general practitioners. The early engineering groups, like the medical societies, were Horizontal in type. After 1850, however, the engineering specialties became all-powerful and the Vertical type of organization became practically the only available society to which an engineer could belong. The first prominent specialty group established was the American Society of Civil Engineers which was founded in 1852. In 1875 the American Society of Mechanical Engineers came into existence, and in 1885 was born the American Institute of Electrical Engineers. The succeeding years saw the formation of the specialty societies for mining engineers, communication engineers, refrigeration engineers, aeronautical engineers, theoretical and applied mechanical engineers, and so forth to the present date. The important thing to remember is that these were primarily technical societies, Vertical in

organization, rather than groups of general professional scope.¹⁹

In spite of the rapid and extensive development of the specialty engineering organization, however, there were always engineers who tried to promote the general, horizontal type of society which could include in its membership all kinds of engineers. During the past 100 years the author is informed that four such efforts have been made. Without going into the details, which time and space do not permit to review, the first effective attempt to found a national organization of the Horizontal type existing in Medicine, was the National Society of Professional Engineers which was in 1934. This society, we are told, was the off-spring of what Engineers refer to as the Four Founder Societies. These included the American Society of Civil Engineers, the American Society of Mechanical Engineers, the American Institute of Electrical Engineers, and the American Institute of Mining Engineers.^{13 19}

State Engineering Societies have had a precarious and sporadic existence although now most are solidly established. Among earlier state groups was the Illinois Society of Professional Engineers founded in 1886.

Predictions

1) Medicine has long since promoted both the Horizontal and Vertical types of organization in its ranks for the reasons given and with the results noted. It is anticipated that Medicine will continue to encourage wide-spread membership in both types of societies until nearly full-coverage is achieved.

2) Engineering specialty societies will, of course, continue to flourish for very obvious and well-known reasons. In the future, however, we predict a rapid growth of general, horizontal-type engineering organizations on

¹⁹Much of the historical data in this paragraph was supplied through the courtesy of Mr. H. P. Orland, Assistant Editor, Federation of Sewage Works Association, whose office is in Champaign, Illinois.

the local, state and national basis. It would appear that probably the National Society of Professional Engineers may serve as the guiding force in this development becoming eventually the dominant organization speaking as the official voice of Engineering on economic and political matters affecting its standards and welfare.

Conclusions

Review of the material presented in this article reveals that both Engineering and Medicine have honestly strived to improve their standards of training and practice for public as well as professional benefit. Each profession has had certain successes and failures in trying to bring about increasing proficiency, and each profession has something to learn from the other in this respect.

The fundamental problems encountered in one profession are found to exist in the other, and a more intimate sharing or exchange of experience should be mutually helpful. More fraternity and cooperation is especially desirable in this day and age if these two honorable professions are to successfully and effectively meet the challenge of socialization which appears to be rampant in this social age.

AUTHOR'S ADDENDUM: Since this paper was written and accepted by the ILLINOIS ENGINEER, the author has learned that the College of Physicians and Surgeons of Columbia University in New York, among a few other schools, has been trying to select medical students along the lines recommended in this paper. Our understanding is that the College of Physicians and Surgeons feels that they are now getting a much better type of student than formerly when grade consideration was given the predominant emphasis in selecting medical school applicants.

Dean Williard C. Rappleye has given permission to make the following quotation. He writes: "Every effort is made in the selection of students to admit those applicants who, in addition to evidence of intellectual capacity and achievement in the pre-medical courses, have the personality, industry, general cultural ability, resourcefulness, intellectual self-reliance and maturity to assume responsibility in matters of life and death."

News From Chapters

Capital Chapter

Eighty-three members and guests of Capital Chapter met at the Mill Tuesday, June 27, 1950, for the chapter's "Ladies' Night." Following a splendid dinner, President Murphy opened a short business meeting, announcing that since there were no pressing communications, the routine affairs of current interest would be handled by the various committee chairmen, operating through the executive committee. Secretary Hudson announced that partial returns had been received from the letter sent to the U. S. congressional candidates for election, and that a summary of the results would be included in the "Chatter" as the returns became more complete. The resolutions committee was instructed to prepare a resolution to be sent to the wife of Wm. Ruggles, expressing the Chapter's loss due to Mr. Ruggles'

passing. There being no urgent new business, the meeting was adjourned at 7:30 P.M.

The group was then conducted on an interesting two-hour inspection of the Pillsbury Mills in Springfield. At the conclusion of the trip, refreshments were served in the cafeteria of the Pillsbury plant.

July 26th

President J. P. Murphy opened the July 26, 1950 dinner meeting of Capital Chapter, held at the Mill. Twenty-six members and five guests were present. Following an introduction by program chairman Leslie Ryburn, a twelve minute motion picture was presented by J. W. Magee and F. C. Blythe, representatives of the Chicago and Springfield offices, respectively, of the Westinghouse Electric Manufacturing Company. The picture illustrated the new "Centrifire with link grate"

arrangement of handling steam boiler fuels; also of interest was the compact unit table-top projector and screen used in the projection of the film.

Agent Ross Randolph then gave an interesting discussion of some of the major activities of the FBI. He reported the internal security program of this agency to be carried on with 3800 agents; the government's program for maintaining a clearing house for all fingerprints was outlined with the indication that we now have 113 million sets of prints; of current interest was the point that all espionage items should be handled by the FBI, in accordance with the President's request; one of the finest achievements, was reported as being the establishment of the National Academy in Washington for the uniform, efficient training of police department representatives. A question period followed the discussion during which considerable thought was given to the handling of espionage information.

Treasurer Kessell reported the balance of \$58.88 in the chapter treasury. President Murphy then announced the resignation of R. S. Nelle as chapter representative. Following a call for nominations for replacement, Gustav Rehm nominated A. M. Frost to fill in the unexpired term; the nomination was seconded. It was then moved and seconded that the chapter cast a unanimous ballot for candidate Frost; the motion carried without opposition. A motion was then tendered by Representative Frost that the chapter extend an expression of appreciation, through official communication, to Mr. Nelle for his splendid work in aiding the Chapter by his representation. The motion carried unanimously.

H. A. Spafford, chairman, state legislative analyst committee advised that the younger engineers, in the chapters he has visited, look with more favor to the employment of a full-time analyst than do the older. He suggested that regardless of the income of the present program, the membership was being given some new ideas. Spafford recorded that "legislative representation" would enable the Society to give its men an active voice in civic affairs, not only from the view of personal gain, but also from the advantage of developing professional esteem by being present and aiding when state-wide and local problems are seeking solution. The giving of service to the Society's members is vital to the development of a representative membership, needed if we ever expect to handle our professional affairs "our way" rather than the "union" way. Spafford reported that the advance of union participation, by governmentally employed engineers, endangers our Society's welfare and that we must act quickly to conduct our affairs as our NSPE and ISPE desire.

Chairman Wm. Russell, chapter legislative analyst committee, reported that the funds and pledges for the committee's work were rolling in, and that the members will be contacted individually to assure support. To facilitate collections, those present were requested to turn in their contributions. Returns and pledges were

announced to have reached approximately 10% of the quota in the first few days.

Dave Abbott, chairman, civic affairs committee, reported that the Springfield garbage disposal project was slowly progressing and that some of the new equipment for the land-fill operation was to be delivered in the near future. He also brought out that Harlan Bartholomew, prominent city planner, had agreed to address a meeting of our group on November 28, 1950 and that a joint meeting with representatives of other interested groups would be arranged for that occasion.

Harry Cordes, chairman, membership committee, advised that transfers and deaths of chapter members were making it increasingly urgent that we step up our program of getting new men. C. E. Chenoweth advised that there was an unnecessary two to four months interval between the time when men took the examination for registered professional engineer and the time when the results were given. President Murphy referred the matter to Chairman J. A. Moore of the committee on education and registration laws, for investigation.

Gustav Rehm moved that the chapter communicate with ISPE to urge that the State Society send a letter to the Governor offering the Society's assistance on the organization of emergency planning now under consideration. The Chapter moved and seconded action instructing the Secretary to communicate the request to the State office; the motion was carried without objection. Rehm also pointed out that the Society should continue its drive toward looking after the professional interests of the engineers; he pointed out that only in recent years had we grasped the idea locally, and that the younger men are the ones that can really benefit; he pointed out that the older men who are idealistic will help but he urged that those not clear on the idea of professional welfare should not obstruct—that they should remember that some of the youngsters will be our own children.

The meeting was adjourned at 10:30 P.M.

Respectfully submitted,
L. D. HUDSON, *Secretary*

Lake County Chapter

The regular monthly meeting of the Lake County Chapter of the Illinois Society of Professional Engineers was held Wednesday, June 21, 1950, at the Chateau du Jour Restaurant. Dinner was served to 42 members and guests.

The business meeting was called to order by Vice President Calkins at 7:10 p.m. The minutes of the meeting of May 17 were read and approved. There were no reports from any of the standing committees. Mr. Drew introduced Mr. Herrick of the Houdaille Hershey Corporation of North Chicago who were to be our hosts on an inspection trip to be held after the business meeting. Mr. Drew then announced that the September meeting would be our annual Ladies Night and would be held

at the Viking Home in Gurnee. Chapter Representative R. E. Anderson gave a complete report on the meeting of the Chapter Executive Committee meeting which was held May 31 to discuss some points that had been brought up at the meeting of the State Board of Direction. The business meeting adjourned at 8:40 p.m. and the membership was advised to meet at the Houdaille Hershey plant at North Chicago for an inspection trip of their facilities. M. T. ANDERSON, *Secretary*.

Chicago Chapter

The monthly meeting of the Chicago Chapter of the Illinois Society of Professional Engineers was held Wednesday, June 21, 1950 at the Electric Club. The business meeting was preceded by a dinner attended by 40 members and friends. We were honored with the presence of the wives of four of those attending, namely, Mrs. F. A. Edwards, Mrs. H. Humphrey, Mrs. F. Rayman, and Mrs. C. A. Walls.

President Walls called the meeting to order and introduced the guests.

A review of the activity of the State Legislative Committee was given by V. E. Gunlock on the request of the President.

The President asked for the reading of letters received from State President Ekblaw relative to a mission accomplished with the State Department of Conservation. President Ekblaw's letter included an enclosure from this department requesting that we submit the names of qualified engineers to assist in the department's recreational lakes program. It was decided to apprise the membership of our chapter of this request suggesting that if any are interested that they submit their names for consideration.

President Walls read excerpts from a memorandum received from National Headquarters relative to maintaining the present provisions of the Taft-Hartley Act pertaining to our profession. It was requested that we contact any incumbent or candidate congressional members to apprise them of this desire and to request their support therefore.

A report of member A. Graf, Chairman of our committee on Ethics and Professional Practices, and Registration Law, was read and accepted. This committee has initiated a comprehensive program to apprehend violations in advertising or telephone listings of non-registered engineers.

A letter from Miles Lamb, Chicago Chapter representative, relative to recommendations for members to the Structural Engineers and Professional Engineers examining boards was read. Names of five Chicago Chapter members were submitted for consideration by the State Officers.

It was moved, seconded and passed that Representative Lamb be instructed to support the proposal of Ambraw Chapter that our society offer aid to the Community Facilities Services of the General Administration

Service in determining the economic feasibility of projects for which application for advance planning funds are made.

President Walls turned the meeting over to Professor F. W. Edwards for the presentation of Junior Awards. Professor Edwards gave a resume of the accomplishments of the recipients and presented them to V. E. Gunlock who presented each with a diploma and a membership card. The recipients were:

Leslie C. Hardison—Illinois Tech.

Ernest W. Nordquist—Illinois Tech.

Robert L. Pasek—Northwestern Tech. Institute

Robert F. Mahood—Northwestern Tech. Institute

The first three were present at the meeting. Mr. Mahood was unable to attend and was awarded the honor in absentia.

Before the speaker of the evening was introduced, President Walls ordered a five-minute recess.

Program Chairman Edwards introduced the speaker, Mr. Homer Humphrey, who spoke on the subject, "The Engineer and His Camera." His talk centered about a group of fine photographs he had taken while in the Service as an engineer in Alaskan territory.

Respectfully submitted,
H. F. SOMMERSCHIELD,
Secretary—Protem

Capital Chapter

President J. P. Murphy opened the regular meeting of Capital Chapter, held August 22, 1950, at the Mill in Springfield. Twenty-two members were present for the dinner affair.

Carl E. Thunman, superintendent, Alzina Construction Co., presented an illustrated discussion on engineering observations made during his trip to Sweden in January, 1950. The socialistic way of living, occasioned because of the small population of 7,000,000 people, is evident in all of the major utilities and industries. Swedish steel is produced with primary emphasis on quality rather than quantity; relations between labor and management are on a high level; building construction is modern and carried to a finer point in design than is ours; building codes provide that all large structures must include bomb shelters. The people live in quarters that are on par with ours but they occupy much smaller space.

Secretary Hudson announced the job opportunities on file with the Chapter; and a letter from Lee Stickler was read requesting that the Chapter investigate the possibility of presenting an ISPE-NSPE display at the 1951 Illinois State Fair. The matter was referred to the Publicity Committee for report at the coming meeting in September. Wm. Russell, chairman of the legislative analyst committee advised that present returns were averaging about \$7.50 per member, with a total collected to date of about \$450.00; the reports were in-

complete due to vacation interference. James Williams of the Civic Affairs committee advised that the chances were excellent for the success of the Springfield operations in the sanitary land-fill for garbage disposal work now under way; Williams also advised that the committee was advancing on firm ground on the air-pollution question and that the cooperation of the coal companies was secured; the activities of the committee are pointed to the November meeting at which Mr. Bartholomew will speak. Les Ryburn announced that the next meeting will feature the topic of Engineering Radar in Hydrology. Treasurer Kessell indicated that the Chapter balance was \$79.23. A. M. Frost, chairman, publicity committee pointed to the joint meeting with the architects scheduled for October, as part of the Chapter's intersociety relations drive; he further referred to the renewal of the interchapter visitation program; the committee is also preparing material for a radio skit to be presented over local stations.

The meeting was adjourned at 10:15 p.m.

L. D. HUDSON, *Secretary*.

Chicago Chapter

Thirty-three members and guests were present at the dinner meeting held at the Electric Club on September 1, 1950. Among the guests present was "Skeets" Roberts, Assistant Secretary of the I.S.P.E., who accompanied the guest speaker, State President George E. Ekblaw.

The meeting was opened at 7:25 p.m. by President Walls with each of those present introducing themselves.

The Secretary then read the minutes of the previous meeting which were accepted as read.

The Secretary read a report of the treasury and receipts and disbursements since January 10, 1950. This report was approved and is attached to the minutes.

The President called on Mr. DeMent to present the member who was awarded one of the junior awards in June, in absentia. Mr. DeMent gave a short account and then presented Mr. Mahood who received the congratulations of the Society by a sharp burst of applause by the members.

Mr. DeMent then gave an account of the forthcoming N.C.S.B.E.E. Convention in October, requesting and inviting the members to attend some of the activities.

The meeting was then turned over to F. W. Edwards, Program Chairman, who introduced Dr. George E. Ekblaw, president of the I.S.P.E. with a short account of Dr. Ekblaw's activities and accomplishments.

Dr. Ekblaw explained the formation and functions of the three committees organized to deal with legislation. He stressed the fact that the work of these committees must be implemented by the support and cooperation of the entire membership to make it successful, particularly the contacting of legislators before their departures for sessions of the legislature.

He reported progress on an employment service for the Society and steps taken to guide engineers into registration examinations.

Dr. Ekblaw's desire to open the meeting for general discussion brought a request by Mr. Reiter to have some of the functions of the Engineer Examining Board clarified. Prof. Lamb, a member of the Board, explained their duties and authority given them under the Registration Law. He gave an account of the work of the Board in arranging of examination of Engineers.

The matter of continuing publication of examination questions was brought out and it was the consensus that they should continue to be published. The advantages of contacting the State Legislators was again stressed by Dr. Ekblaw and elaborated on by Mr. Kaindl. Other points on Engineering registration were discussed by various members.

President Walls thanked Dr. Ekblaw for appearing to give his talk.

The meeting was adjourned at 9:05 p.m.

EDWARD L. REITER, *Secretary*.

Du Kane Chapter

The regular meeting of the chapter was held on September 14, 1950, at the Reddion Restaurant. Thirty-two (32) members and guests were present. Guests present and introduced included Don Rock, James Lenz, Warren Johnson, R. Andreasen and L. W. Scott of Elgin; Emory Fowler, Tom Roy and Chester Obma of Aurora; and A. Nelson of Glenn Ellyn.

Pot roast dinner with all the trimmings was served by "Shorty" at 6:30 p.m. Round table business discussion opened at 7:30 p.m. On motion by Bateman and seconded by W. Deuchler, it was resolved and voted unanimously "that the DuKane Chapter gratefully acknowledge receipt of the 'antique' gavel presented to the Chapter by Wally Rakow for use of Chairman Cash and all future Chapter Presidents." The minutes of the June meeting were accepted as read.

The Legislative Analyst Committee selected by Chairman Cash included "Doug" Drier, chairman; George Booth, Rob Roy, Eric Anderson, and John Bateman. Drier suggested that it might be a good idea to have a hired analyst to educate the legislators of the Engineer's interests and to demonstrate to members and prospective members that we have a hired analyst watching bills of interest to Engineers. Members wishing to make donations should make checks payable to the Illinois Society of Professional Engineers and either send them to Doug. Drier, who will forward them to the Secretary of Illinois Society at Urbana, or mail them direct.

Chairman Cash appointed the following nominating committee to select officers for 1951: Clifford Ashley, Gus Dechler, Ray Watson. New officers to be selected include, president, vice-president, secretary-treasurer, two members for the executive committee (past presi-

dents) and a chapter representative. The committee will report at the November meeting. Election will be held in the December meeting.

Members were reminded of the Refresher Courses to be held in Rockford and Chicago.

Adjournment followed at 9:15 p.m.

Donations to the "kitty" amounted to \$6.55 which will help inflate the dwindling treasury.

W. A. RAKOW, *Secretary*.

Illinois Valley Chapter

The regular meeting of the Illinois Valley Chapter of the Illinois Society of Professional Engineers was held September 19, 1950, at the Streator Country Club in Streator, Illinois.

Before the meeting a chicken dinner was served to forty members and guests.

The meeting was called to order by President Cullen, who introduced the guests of the evening. The reports of committee chairmen and Mr. Dunavan, chapter representative, were deferred until the next meeting.

In the campaign to increase membership Mr. Hollerich submitted a list of names of Professional Engineers who are not now members of this society. Some members promised to work on them.

President Cullen sounded out the feeling of this chapter in regard to Legislative Analyst. Mr. A. L. Miller was informed by President Cullen that no money outside of voluntary contributions was available to support the Legislative Analyst. Mr. Grayback said that \$8,000 was not enough to secure proper legislative representation. Mr. Moran and Mr. A. L. Miller concurred. Mr. Dunavan explained that the Legislative Analyst was not intended to influence the legislature but to note what bills pertaining to the Engineering Profession were introduced and to report with his recommendation on these pending bills to the State organization and the various chapters. The influence or pressure was to come from these sources.

Mr. Kenyon moved that the Chapter should not support the Legislative Analyst program. Mr. Moran moved that the motion be amended to allow voluntary contributions. Amendment carried. Motion carried.

Mr. Staatz brought up the question of more frequent meetings, but it was the opinion of the chapter that the meetings as now held have been interesting and very well attended and no change in the frequency would be desirable.

Mr. Staatz was asked by President Cullen to introduce the speaker of the evening, Mr. I. W. Keeler, of the Wm. E. Pratt Mfg. Co. of Joliet, Illinois, who presented a program showing the manufacture and use of malleable iron. The program was enthusiastically received.

Mr. Williams and Mr. Hultman were given a vote of thanks for arranging the dinner. Meeting adjourned at 9:30 p.m.

LOUIS BOWMAN, *Secretary*.

CAMPAIGN TO ENFORCE TRAFFIC LAWS URGED BY INSURERS' COMMITTEE

An important insurance group has called upon the country's governors, mayors and other officials to take action to "firmly and impartially enforce the traffic laws under their jurisdiction."

The executive committee of the Association of Casualty and Surety companies said accident statistics indicate a lack of uniform and adequate law enforcement which in time may become a menace to the security of the nation itself.

The committee proposed that the association promptly begin a plan of public education "calling attention to the dangers of driving at excessive speeds or while under the influence of intoxicating beverages, and encourage the driving and walking public to more rigidly observe the existing restrictions."

The committee urged legislatures to consider enlargement of state police forces to protect the public against lawless motor vehicle operators.

—*Highway Highlights*

Trucks and boats hauled a larger share of Florida orange shipments to nine leading markets last year than in 1948, and railroads a smaller share, a study made by the Bureau of Agricultural Economics of the Agriculture Department shows.

The shift from rail transportation to trucks and boats in 1949, the report sets out, resulted in railroads hauling about 2,800 fewer carloads of oranges than in 1948 to the nine markets included in the study.

E. N-R. TAKES COGNIZANCE

(Continued from page 5)

2. Organizations of professional engineers for collective bargaining, in any form are to be deplored, although their existence for the present, may be condoned under certain circumstances.

When engineers are treated collectively by an employer they may be compelled to deal with him on the same basis. Employers should appreciate that engineers have individual capacities and talents which should be considered on an individual basis, that the compensation of an engineer should be proportion to the value of his services and not based on his age, his degrees, or any other yardstick that can be applied collectively, and that an engineer's working conditions should conform to the nature of his work rather than to any general pattern applicable to employees engaged in routine tasks that are subject to standardization.

When employers generally are persuaded that professional employees must be viewed as individuals and not in groups or classes, then NSPE may condemn collective bargaining by professional engineers, without qualification. In the meantime, we advise the young engineer that the existence of collective bargaining by professional engineers in an industry jeopardizes his professional status. Either the employer fails to appreciate the professional nature of his engineers' work or the employees themselves are not adhering to professional concepts. Therefore, professional engineers and engineers-in-training should not seek employment where professional engineers, professionally employed, bargain collectively.

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BRITISH TAXES DESTROYING DOMESTIC MARKET FOR CARS

How England's high taxes on both incomes and manufactured products are destroying its own industries is told by the London *Economist* in a recent article on car prices.

Before the war, *The Economist* points out, the cheapest British cars cost about £125. Two million cars were in use—exactly equal to the number of people whose yearly income after taxes was at least four times the price of the cheapest cars.

Today, with high taxes on cars and incomes, the cheapest British cars cost well over £300, while only about 400,000 persons have net incomes four or more times this amount.

What effect these facts may have on British car ownership can't be determined accurately today, since the bulk of English cars now are tagged by the government for export. But *The Economist* concludes:

"Unless the present relationship between costs (including purchase tax) and incomes is very radically al-

tered, the permanent domestic market for the British motor-car industry . . . will be only a fraction of what it was."

The Debt

One midnight deep in starlight still
I dreamed that I received this bill:
5000 breathless dawns, all new,
5000 roses wet with dew,
1000 snowflakes served ice cold,
Five quiet friends, one baby's love,
One mad white sea with stars above,
One hundred music haunted dreams
Of winding roads and drowsy streams.
One June night in a quiet wood,
One heart that loved and understood.
I wondered when I waked at day
How, how in God's name could I pay.

Author Unknown
Reprinted from *Quote*

CENTRAL ILLINOIS CHAPTER GOES TO BAT FOR THE ENGINEERS EMPLOYED BY THE CITY OF DECATUR

Honorable Mayor and Members of the City Council
Macon County Building
Decatur, Illinois

Gentlemen:

We the Professional Engineers are proud of our part on behalf of keeping and making our City government more solvent, sound and efficient. This particularly goes for the 100 members of our Chapter, who are citizens of Decatur, and the four who are top engineers in your employ.

Another of our aims is to get appropriate salaries for engineering services rendered. This does not mean that all engineers, regardless of the requirements of the job, should receive the same salary. Rather we do recommend a fair days pay for a fair days work, commensurate with the engineering skills and services needed on the particular job. This should not only apply to your engineers but also to all of your Technical and Supervisory personnel.

For your consideration we are enclosing herewith, a copy of our Schedule and Minimum Fees and Salaries. As you will note on page 21, we present a table showing a range of salaries corresponding to certain classes of jobs. Immediately following are the corresponding job descriptions.

As the cost of living and the value of the dollar is no a static thing, we have accepted the Bureau of Labor Statistics, Cost of Living Index, as the adjustment multiplier to use with salaries schedules. We are proud that we took this stand some time before General Motors did. The Cost of Living Index for May was 168.6 and is rising sharply. This applied to our minimum salary recommendations for the Decatur area makes the table read as follows, as of today:

Sub-Professional		
Grade	Salary	Salary—Adjusted by 168.6
A	\$1440 to \$1800	\$2430 to \$3040
Professional		
1	\$1800 to \$2340	\$3040 to \$3950
2	\$2340 to \$2880	\$3950 to \$4850
3	\$2880 to \$3510	\$4850 to \$5900
4	\$3510 to \$4050	\$5900 to \$6800
5	\$4050 to \$4770	\$6800 to \$8000
6	\$4770 to \$5400	\$8000 to \$9100
7	\$5400 to \$6750	\$9100 to 11800
8	\$6750 to \$9000	11800 to 15200
9	\$9000 up	15200 up

We strongly recommend that you consider these factors when making your budget and adjustments for your personnel.

Yours very truly,

JOHN ASKREN, *President*
Central Illinois Chapter

How to bridge the gap in a Drainage Budget

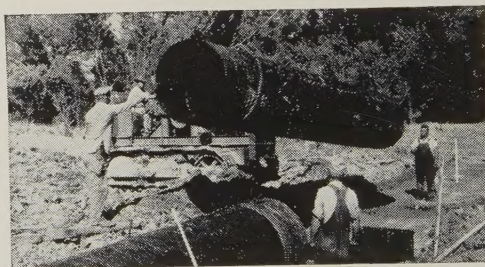


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ARMCO DRAINAGE STRUCTURES



Though silence is acclaimed as golden
And best unbroken
I'll take the silver sound of words
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—Selected.

PROFESSIONAL EXAMINATIONS

The November 1948 and the May 1949 State of Illinois Department of Registration and Education examinations for registered professional engineer have been reproduced in one booklet, available now.

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EXECUTIVE OFFICES

December 31, 1949

S. L. GRANT
City Manager

Pacific Flush-Tank Co.
441 Lexington Avenue
New York 17, New York

Mr. L. L. Langford

Gentlemen:

We thought that you would like a report on our progress.

As you remember, we started primary digester operation 13 December. On 21 December we were producing over 15,000 cu. ft. of combustible gas a day. Due to various difficulties caused by construction delays, no attempt was made to switch the pre-heater from butane to sewage gas. On 30 December we felt that all construction difficulties had been over come, and the switch was made. The pre-heater burned the gas beautifully, and is maintaining a better temperature than with the bottled gas. You might be interested to know that the bottled gas left a considerable carbon deposit in the combustion chamber, but as soon as we switched to digester gas the carbon was burned, and now the chamber is perfectly clean.

We have transferred only enough supernatant from the primary to the secondary digester to float the secondary cover, and have not yet filled the primary digester. We have the temperature of the primary up to 85°, and intend to get it to 90° before we start bringing up the temperature in the secondary. The pH is up from 6.0 to 6.5, so we are not too concerned about this.

We feel that the pre-heater is operating beautifully, and justifies our efforts to have it installed.

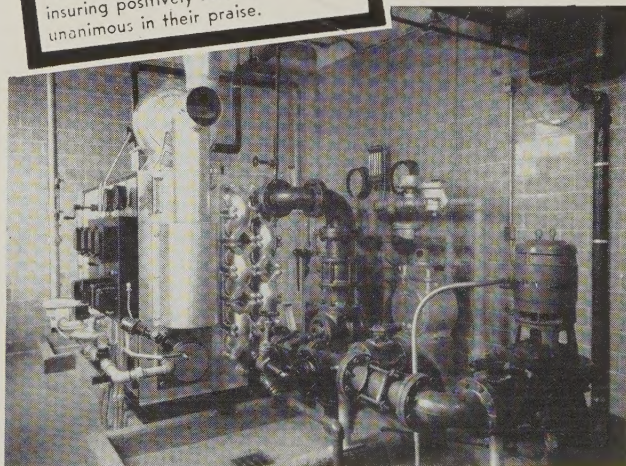
With best wishes for the New Year, we are

Very truly yours,

Samuel H. Reeves
Samuel H. Reeves
Supt. Water & Sewage

The LETTER ABOVE IS MORE ELOQUENT

than anything we could say about the P.F.T. Digester Heater and Gas Safety Equipment installed at Winchester, Va., to serve two P.F.T. 43 ft. Floating Cover Digesters. Sewage plant officials and consulting engineers who have had experience with P.F.T. Digester Heaters and Heat Exchangers, and auxiliary gas control equipment insuring positively safe operation, are unanimous in their praise.





Kimbrough Towers, a 96-family architectural concrete apartment building in Memphis, Tenn., was completed in 1939. It was designed for John F. Kimbrough, Jr., realtor, by H. M. Burnham, architect, and H. B. Hulsey, associate architect; Gardner & Howe, structural engineers; S. & W. Construction Co., contractors (all of Memphis).

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bines both architectural and structural functions in one firesafe material.

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